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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,324	01/20/2006	Hiroko Ueda	60004-111US1	2203

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EXAMINER	
LACLAIR, DARCY D	
ART UNIT	PAPER NUMBER
4171	

NOTIFICATION DATE	DELIVERY MODE
05/21/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

Office Action Summary	Application No.	Applicant(s)	
	10/565,324	UEDA ET AL.	
	Examiner	Art Unit	
	Darcy D. LaClair	4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/10/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: There are minor spelling and grammatical errors in the specification. Examples are the use of the phrase “have/has been being,” which could be replaced with “have/has been” (paragraph 7 and 8 are the first such instances), and the misspelling of "gel" as "gal" in paragraph 58. In addition, although (3) Plant Component (C) is described in detail in the specification a well as the subject of claim 6, it is not mentioned at all in the abstract or summary of the invention. A brief mention in the summary of the invention would be appropriate.

Appropriate correction is required.

Claim Objections

2. Claims 1, 8, and 10 are objected to because of the following informalities: The phrase “having the absorption capacity at 60 minutes toward 0.90 mass% sodium chloride aqueous solution under the pressure of 1.9 kPa not less than 20 g/g” lacks clarity. Specifically, the word toward is confusing. It appears that the intended meaning is that this resin will, given a 0.90 mass% sodium chloride aqueous solution, have an absorption capacity of not less than 20 g/g at 60 minutes under the pressure of 1.9 kPa. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1- 6 and 10-21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Anderson et al. (US 4,954,562) in view of Yamada et al. (EP 02 82287), or alternately over Yamada et al. in view of Anderson et al.

5. With regard to claims 1 and 10, which outline a water absorbent resin with an absorption under pressure of not less than 20g/g composed of unsaturated acidic monomers and a complex oxide hydrate containing zinc (as the primary metal) and aluminum or silicon, and method for producing the resin based on mixing, Anderson teaches a water absorbing crosslinked acrylate resin for use in sanitary applications, which is composed of 70-100% neutralized acrylic acid, (col 4 line 55) and 0.001% to 5% metal oxide. (col 4 line 55-65). Anderson teaches that this composition shows a 2-4% increase in water absorption over standard neutralized polyacrylate resins, and demonstrates an improved “dry feel” which is analogous with an increased absorbance and retention of water. (col 14- 15) This resin is substantially similar in both composition and preparation to the resin described in the instant application, and it is therefore suggested that it would display similar inherent properties such as absorption capacity. The metal oxides can include a variety of oxides, including zinc, aluminum,

and silicon, and multiple metal oxides in hydrated or anhydrous form. The complex zinc aluminum oxide is specifically suggested. (col 8 line 15-45) In order to incorporate these non-reactive metals, they are well mixed with the resin in order to disperse the particles homogeneously and then the polymers are crosslinked to insure that the metals will be retained in the matrix. These metals act to increase the dry feel and absorption of the final resin product. (col 9 and 10)

6. Claim 2 details a water absorbent resin with the composition of claim 1, where the complex oxide hydrates are obtained by co-precipitation. Anderson is silent with respect to the method of producing the metal oxide complex particles; however it is the examiners opinion that precipitation is not a substantially unique method of producing a complex oxide hydrate, nor would this method result in a substantially unique metal complex.

7. With regard to claims 3 and 11 which specify that the resin composition will have less than 20% separation from the complex oxide hydrate, Anderson teaches the method of incorporating a crosslinking step after mixing a non-reactive particulate into the resin. This would essentially lock the metal particulate into the crosslinked matrix, and significantly reduce the separation ratio. The crosslinking steps described to lock the metal oxide into the matrix are substantially similar to the surface crosslinking method described in the instant application, which suggests that a similar separation ratio would be achieved.

8. With regard to claims 4 and 12-14, which specify the size of the resin particulate as >90% mass 150 μm to 850μm, and >60% mass as larger than 300 μm, Anderson

teaches that the dry solid copolymer obtained can be pulverized to achieve the desired particle size, (col 11, line 45-55) and teaches 20 to 100 mesh particle size in examples 19 to 22. This corresponds to 149 μm to 2 mm. This significantly shares the desired range of the instant application, and Anderson additionally teaches flexibility of particle size in the process of pulverizing the resin, and would therefore be able to provide particles of a desired size for use in a given application.

9. With regard to claim 6, which teaches a resin further comprising a plant component, Anderson teaches that the composition will include as much as 20% water (col 17, example 2-5). Plants contain water as an essential component of their photosynthetic process, and a plant can contain as much as 90% water.

10. Anderson is silent on the specific mass ratio of zinc/aluminum or zinc/silicon taught in claim 1 (50/50-99/1 by weight with zinc as the major component) and claims 5 and 15-21, (60/40-99/1 by weight with zinc as the major component). In addition, while Anderson does require the presence of a metal oxide, including a complex oxide hydrate, it is taught with the purpose of improving the absorption capacity of the resin, and not as a deodorant, as it is with the teachings of the instant application.

11. With regard to the weight ratio limitations of claims 1, 5, and 15-21, Yamada et al. teaches a deodorizer which is a complex metal oxide hydrate of the composition SiO_2 (5-80 mole%), $MO_{n/2}$ (5-65 mole%), Al_2O_3 (0-60 mole%), where M may be zinc. Because the molecular weight of zinc (65.38 g/mol) is more than double that of silicon (28.08 g/mol) and aluminum (26.98 g/mol), this composition will be significantly skewed

toward zinc being the main component by weight for the weight ratios taught by Yamada.

12. With regard to claim 2, Yamada teaches that the complex metal hydrate is obtained by reacting water soluble metals in the desired ratio in the presence of water, followed by a step where the resulting precipitates are heated in the presence of water. Further, the simultaneous addition of the reactants allows the formation of precipitated metal salts (or complexes) having a composition corresponding to the concentration of the aqueous solution. This process will yield a pale colored powder. (page 4 line 11-21, 33-37 and surrounding sections).

13. With regard to claims 4 and 12-14, Yamada also details the size preference for the resin in which the complex metals of his invention would be incorporated, and indicates that the deodorizer would be used with a wetable, water-insoluble polymer absorbent with an average size 10-1000 μm, preferably 150-600 μm, (page 5 line 1-6) which is consistent with the claimed polymers of the instantaneous invention.

14. With respect to Claim 6 Yamada teaches also teaches the addition of water, which is a plant component as detailed above, to their compositions. Additionally, Yamada teaches the addition of 0.03% Limonen, which is an extract of citrus rind to a toiletary detergent (see example 26). This suggests that it would have been known to add a plant component to a composition which incorporated the complex oxide hydrate particles of Yamada's invention.

15. Both of these inventions are in the same field of endeavor, components of sanitary materials for the absorption of human fluids. Anderson provides a detailed

teaching on an absorbent resin composition with a general non-reactive particulate complex oxide hydrate present, to which it would be obvious to add the teachings of Yamada, to alter the mass ratio of metals in those particles to gain the additional benefit of a deodorizer.

16. Alternatively, Yamada teaches specific compositions of complex metal oxide hydrates which function as deodorizers and details that these would be readily used in combination with a general absorbent resin. It would be obvious to use the resin taught by Anderson for its improved absorbance and because it is a composition which was already known to successfully incorporate metal particulate.

17. Claims 1, 4, 6-10, 12-14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 4,954,562) and Yamada et al. (EP 02 82287), further in view of Tyrrell et al. (US 2002/0120242), with supporting evidence provided by Qin et al. (US 6951895) (1) and Qin et al. (US 2005/0027268) (2).

18. Although the teachings of Anderson and Yamada, detailed above, are both clear on the use of their inventions in the field of human fluid management, (Anderson, col 1 line 28-33, col 2, line 15-24, col 15 line 37-38. Yamada, p 2, 48-56, p 3 line 8-14, p 5, line 0-6), both are silent with respect to the construction of sanitary products. Providing a structure which will make that feasible is necessarily a part of the functional use of these inventions, as it is unlikely that an infant could be induced to sit on a pile of resin particulate for several hours at a time. Both additionally fail to teach the addition of a hydrophilic fiber for use with the absorbent resin material.

19. Tyrrell et al. teaches absorbent articles using both absorbent resins (paragraphs 71, 74, 76-79) and deodorizing additives to reduce or eliminate unpleasant odor and protect against the formation of malodor on body surfaces. (paragraph 35)

20. With regard to claims 1, 4, 8, 10, and 12-14, which specify the absorbent capacity and size of the resin particulate to be used in the absorbent articles, two examples suggested by Tyrrell are the absorbent resins, SANWET IM 3900 and FAVOR SXM 880. Qin et al. (1) and Qin et al. (2) teach the properties of Sanwet 3900 and Favor SXM 880:

21. Sanwet 3900 is of particle size 300 μm - 600 μm, with an absorbency under a load of approximately 2 kPa (0.3 psi) of 29.8 g/g. (Qin 1 Table 1, 3, and 8)

22. Favor SXM 880 has an absorbency under a load of approximately 6.21 kPa or 0.9 psi of 31.9 g/g. (Qin 2 Table 1) The particle size is not disclosed.

23. Both of these resins is in excess of the 20 g/g absorbency under a pressure of 1.9 kPa and therefore meet the limitation on absorption capacity. Sanwet 3900 meets the size limitation.

24. Corresponding to claim 6, which requires a resin comprising a plant component, Tyrrell teaches that this composition may include from 0.1 to 10 percent by weight of a botanical additive, described as a water soluble or oil soluble plant extract. (paragraph 23)

25. With regard to claims 7 and 8, which require a hydrophilic fiber as a component of the absorbent material, Tyrrell's absorbent body can include a combination of hydrophilic fibers and high-absorbency particles which can be selected from natural,

synthetic, and modified natural polymers, which includes cross linked substances. (paragraphs 71, 74, 76-79)

26. With regard to claims 9 and 22, which outline an absorbent product with a top and bottom sheet and an absorbent filler, Tyrrell et al. describes an absorbent article that includes an outer cover, a permeable bodyside liner (or top sheet), an absorbent body, and a composition. (paragraph 19) The outer cover is described as being substantially liquid impermeable. (paragraph 63)

27. While Tyrrell teaches a generic resin, such as the commercially available resins Sanwet IM 3900 and Favor SXM 880, and a generic deodorizer, it would have been obvious, to one of ordinary skill in the art within this field of endeavor, to substitute a resin with improved absorbance and/or improved deodorizing capabilities. This could easily be the resin taught by the combination of Anderson and Yamada, detailed above.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kitamura et al. (US 4,367,323), Johnson et al. (US 5,684,106), Ishizaki et al. (US 6,254,990).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Thursday 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/DDL/